

Mammoth, of another about half-grown, of the Red Deer, the fossil Horse, and of a small rodent.

The Author gives sections through Endsleigh Street and along the southern side of Endsleigh Gardens, and shows that where the bones were found there was a distinct valley in the London Clay, running in a direction nearly due north and south, the inclination of the valley being towards the north. The London Clay reached nearest to the surface towards St. Pancras Church and in Upper Woburn Place, the total thickness of the overlying deposits and the made ground there being only about 12 feet.

Other sections, given along the southern sides of Tavistock and Gordon Squares and through Gordon Street and the western side of Gordon Square, show varying thicknesses of the deposits, overlying the uneven floor of London Clay, of from 16 to 21 feet; the greatest thickness here is found at the north-western corner of Gordon Square.

Seeds were also discovered in a loam near the bottom of Gordon Street, at the same horizon as that containing the mammalian remains, and some shells were found in a band of sandy clay, under a calcareous deposit, about halfway down the western side of Gordon Square.

The Author says that the deposits above the mammaliferous loam overlying the London Clay in this area cannot be classed as post-Glacial river-deposits, but must be considered as of Glacial origin. The animals, therefore, which evidently died on the old land-surface where their remains were found, lived there early in the Glacial Period.

4. "The Morphology of *Stephanoceras zigzag*." By S. S. Buckman, Esq., F.G.S.

Material which has come into the Author's possession throws light on the developments of *Stephanoceras zigzag*, and such developments seem to supply missing links in the connexion of Bathonian and Bajocian species.

The Author separates the developments of *S. zigzag* into three series, and discusses the allied forms of each.

MISCELLANEOUS.

On some new Coccidiidæ parasitic in Fishes.

By M. P. THÉLOHAN.

I HAVE already described* as *Coccidium gasterostei* and *C. sardine* two species of the genus *Coccidium*, the entire development of which

* Thélohan, "Sur deux Coccidies nouvelles, parasites de l'Épinoche et de la Sardine," *Comptes Rendus de la Société de Biologie*, June 15, 1890; id. 'Annales de Micrographie,' 1890 (*Ann. & Mag. Nat. Hist.* 1890, vi. p. 194).

takes place within the tissues of the host; moreover, the enveloping membrane of the cysts of these species is of an extreme delicacy, presenting a contrast with the thickness and resistance of the same envelope in the other species previously described, and in which, as we know, development is partially accomplished in the external medium.

I have since been able to observe similar facts in other species of *Coccidium*, likewise parasitic in fishes, which have, moreover, enabled me to establish certain interesting peculiarities.

I met with one of these parasites in the liver of *Caranx trachurus* (at Concarneau, Saint-Valery-en-Caux). In the adult state, which alone I was able to observe, it appears in the form of a perfectly spherical cyst, with a mean diameter of $25\ \mu$, and enclosing four spores without a trace of a residual mass. These spores within the cyst are arranged in very regular fashion crosswise and by two and two, in such a way that the two spores which correspond to the same diameter of the cyst are placed at the same level and above or below the two others. I propose the name *Coccidium cruciatum* for this species, to commemorate this arrangement, which is constant and very characteristic.

The spores when seen in optical section present an elliptical or oval contour. They measure on an average 7 to $9\ \mu$ in length by $6\ \mu$ in breadth. Their envelope, which is tolerably thick, is very remarkable on account of its composition; it is, in fact, formed of two apposed valves, and this has not hitherto been observed in any Coccidiid. All round the spore, in the direction of its greater diameter, we observe a kind of little thickening, marking the line of union of the valves.

The contents in the fresh state exhibit nothing but large refringent globules; these elements, which represent a residual mass, or "noyau de reliquat," disappear in greater part under the action of reagents, and we are enabled to detect the falciform bodies. In preparations which are not stained or where the stain is non-elective we often fancy we are able to distinguish four of these: this is due to the fact that these elements, which are longer than the spore, are recurved within its cavity; moreover, at the level of the thickening of the case a phenomenon of refraction is produced, which gives the sensation of a solution of continuity in their length. But in reality there exist but two of these bodies, and by studying preparations properly fixed and stained we come to distinguish them clearly, as well as the nucleus of each.

I have found *C. cruciatum* sometimes disseminated in the tissue of the liver, sometimes in little brownish masses enclosing a variable number of cysts, and situated usually in contact with important vessels.

In the liver of the sardine I have observed another very closely allied Coccidiid. It differs from *C. cruciatum* only in the fact that the dimensions of the cyst are perhaps slightly smaller and that its spores are never arranged in any order. The latter present pre-

cisely the same characters as in the preceding species. I abstain for the moment from giving a name to this parasite, since my observations do not permit me to decide with a sufficient degree of certainty whether it is necessary to distinguish it specifically from the parasite of *Caranx*, or whether the two organisms are to be united under the same name.

Lastly, I have found in the kidney, the spleen, and the liver of the tench a *Coccidium* of very small size, for which I propose the name *C. minutum*. The cyst measures no more than 9 to 10 μ (in sections). I was able to follow the various phases of the development, and, among others, to recognize in this form the karyokinetic division of the nucleus which I had previously reported in *C. gasterostei*. There are four fusiform spores, each enclosing two nucleate falciform bodies.

In concluding this note I desire to draw attention to some very singular little bodies which I have met with for a long time in the tissues of different fishes.

They are oval in form, occasionally a little irregular, and are provided with a thick envelope with a very sharp double contour. In the interior a nucleus is observed, usually situated at one of the extremities; the remainder of the cavity is filled by a large number of very delicate little rods, which appear to converge towards a point, most frequently lying opposite to the nucleus. Their dimensions seem to vary in the different fishes. I have found them 6 to 9 μ in length by 4 to 6 μ in breadth in the epithelium of the intestine of the perch; 10 to 12 μ by 5 to 8 μ in the kidney of the stickleback; 15 μ by 10 to 12 μ in the connective tissue of the ovary of the minnow; and 12 to 15 μ by 6 to 9 μ in the epithelium of the gills of the tench. I have also found them in the bleak, the carp, &c. My excellent friend, Dr. Laguesse, in the course of his beautiful researches into the histology of fishes, has had occasion to observe the same bodies, especially in *Orenilabrus*.

Unfortunately I can do nothing but state the existence of these singular forms. Their parasitic nature appears to me to be almost beyond doubt; but their characters are so peculiar that I have been unable to discover any affinity between them and the parasites at present known.—*Comptes Rendus hebdomadaires des séances de la Société de Biologie* (Séance du 9 janvier, 1892): from a separate impression communicated by the Author.

On the Dissemination of Hirudinea by the Palmipeds.

By M. JULES DE GUERNE.

MM. Raphaël Blanchard and Mégnin have recently published, in the 'Comptes Rendus des séances de la Société de Biologie'* , several

* Raphaël Blanchard, "Sur la Sangsue de Cheval du Nord de l'Afrique" (séance du 17 octobre, 1891); P. Mégnin, "Sangsues de l'Algérie et de Tunisie ayant séjourné plus d'un mois dans la bouche de Bœufs et de Chevaux" (séance du 24 octobre, 1891).